Achieving excellence in managing community forests: What conditions for success arise from cases in Latin America

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Abstract: Latin America is the region showing the highest increase in tropical forests sustainably managed by communities. A wide range of community forestry initiatives presents a mixed picture of experiences that promote local forestry. This raises questions in relation to the reasons or factors that explain the disappointing outcomes where they occur or conversely, the successful examples of community and smallholder development initiatives. This case study aims at partially answering these questions by analysing the enabling conditions or successful factors behind a set of exemplary cases of forest management by communities and smallholders in Latin America, drawn from an effort led by the United Nations Food and Agriculture Organization (FAO) to find out what works and why in sustainable forest management in the three tropical regions. From the five cases selected from Latin America, three correspond to initiatives where indigenous or traditional communities manage native forests: San Andrés in Petén, Guatemala; San Diego de Tezains in Durango, Mexico; and Cururú in Santa Cruz de la Sierra, Bolivia. The other two cases are local initiatives run by smallholder associations to protect, manage, and restore mixed primary or secondary forests, plantations, and agroforestry systems: El Choloque in Lambayeque, Peru, and Chinchiná in Caldas, Colombia. A set of enabling conditions facilitating the successful development of community-forestry processes are highlighted. The study finalises with some concluding remarks and recommendations.

Keywords: Sustainable forest management, community forest management, tropical forests

8.1 Introduction

8.1.1 Forests managed by communities and smallholders

The area of the world's tropical forests that are under some form of sustainable management has increased 50% since 2005, from 69 million ha to 183 million ha (ITTO 2011). The forests managed by communities (indigenous peoples and other local communities) likely represent a significant amount of this increase, as the area of forest under community forest ownership or management has more than doubled over the past decade or so, much of it in tropical countries, with indications that it is likely to double again in a similar time period (White and Martin 2002). Latin America is the region showing the highest increase in tropical forests sustainably managed by communities. According to the ITTO report cited above, forest-dependent communities have land tenure or access rights to roughly 25% of the forested area in the region.[1]

[1] It includes 13 member countries: Bolivia, Brazil, Colombia, Ecuador, Guatemala, Guyana, Honduras, México, Panama, Peru, Suriname, Trinidad and Tobago, and Venezuela.

As in other tropical regions, indigenous populations and other forest communities have been practising community forestry in Latin America for centuries. One of the key drivers for the emergence of community forestry (in different places between the 1970s and 1990s) has been deforestation and forest degradation occurring as a result of decades of overexploitation from industrial logging (Charnley and Poe 2007).

Community forestry has evolved as one of the most promising options to meet rural development challenges, as it is supposed to combine both economic development and the conservation of tropical forests. The approach aims to provide an urgently needed source of income to local forest users and thereby motivate them to value and conserve forests (Palm et al. 2005). Community forestry may also contribute to carbon sequestration, biodiversity conservation, avoidance of erosion, and water quality (Pokorny et al. 2010). Recent research (Porter-Bolland et al. 2012) suggests that it may be more effective in achieving some of these goals than other strategies, such as the declaration of protected areas.

But community forest management (CFM) initiatives often suffer from weak organisational, management, and technical capacities, as well as from external problems due, for example, to a legal framework that does not consider local realities and world views (Sabogal et al. 2008, FAO 2010). A review of the literature that deals with the wide range of community forestry initiatives[2] presents a mixed picture of experiences that promote local forestry (de Jong et al. 2010). In view of the quite contrasting experiences with community forestry, de Jong and the other authors of the review address several relevant questions: What explains the disappointing outcomes where they occur? Or, conversely, what explains the successful examples of community and smallholder development initiatives?

This case study aims at partially answering these questions by analysing the enabling conditions or successful factors from a set of exemplary cases of forest management by communities and smallholders in Latin America.

[2] Also called smallholder forestry, participatory forest management, community-based forest management, community-based forestry, adaptive collaborative management, or joint forest management (de Jong et al. 2010).

8.1.2 The "In Search of Excellence in Forest Management" initiative and the analytical framework used in this chapter

The preponderance of negative news, especially in the 1990s, about the destruction of tropical forests led to efforts headed by the United Nations Food and Agriculture Organization (FAO) to balance the negative reports on tropical forests with an idea to identify cases of exemplary forest management and examine the core components of high-quality forest management. This was the beginning of a FAO initiative to promote the development of sustainable forest management (SFM) practices to strengthen policies and the application of SFM and to show the main challenges and alternatives in different conditions and contexts (i.e. across a variety of different forest types and ecosystems, exemplifying management in large and small forest areas for diverse objectives and under different ownership arrangements). The broad concept of SFM as defined by the United Nations General Assembly[3] was used, which includes natural and planted forests and agroforests, all geographic regions and climatic zones, and all forest functions, be they conservation, production, or multiple purposes to provide a range of forest goods and ecosystem services at the local, national, and global levels.

The initiative compiled and documented more than 80 cases of successful SFM that demonstrate the economic, social, and environmental benefits that can be achieved under SFM in three major (mostly tropical) regions.[4] Through their varied approaches and strategies in multiple contexts, these examples show that good forest management is a powerful conservation practice, which can reduce deforesta-

[3] The United Nations General Assembly defines sustainable forest management as a "dynamic and evolving concept, which aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations" (United Nations General Assembly 2008). The SFM concept encompasses both natural and planted forests in all geographic regions and climatic zones, and all forest functions, be they conservation, production, or multiple purposes to provide a range of forest goods and ecosystem services at the local, national, and global levels.

[4] Central Africa, where 24 exemplary cases in nine countries were identified and described (FAO 2003); Asia and the Pacific, involving 16 countries with 28 cases (FAO 2005); and Latin America and the Caribbean, with 22 exemplary cases and 13 cases with exemplary aspects in 14 countries (FAO 2010).

Table II 8.1 Set of minimum criteria of exemplariness for assessing and validating cases of sustainable forest management in Latin America. Source: FAO 2010.

Social component
1. Contribution to local development and poverty reduction
2. Quality of employment and workplace safety
3. Mechanisms to resolve or manage conflicts arising from forest management
4. Respect for rights, cultural diversity, and local knowledge
Economic component
5. Diversification of uses
6. Adding value to products and services of the forest
Environmental component
7. Innovative conservation and protection mechanisms
8. Initiatives to enhance environmental benefits and valuation of environmental services
Institutional and technical component
9. Diversity in management and organisation processes
10. Innovative partnerships
11. Innovative technical aspects of forest management

tion and maintain environmental services, as well as a powerful development option that can help reduce rural poverty and improve living conditions.

For the study in Latin America, a panel of experts agreed on a selection of 11 "minimum criteria of exemplariness" (MCE) that included key social, economic, environmental, institutional, and technical aspects of what was considered successful forest management (see Table II 8.1). The MCE standards were completed with the development of indicators (73 in total), verifiers, and means of verification, later on used for field assessment of the pre-selected exemplary cases.[5]

The majority of the 35 exemplary cases were forest management programs run by indigenous communities and local mestizo (of mixed indigenous and Spanish parentage) or smallholder associations for a broad range of objectives. On the basis of the availability of information to address the framework conditions defined in the analytical framework of this book (see Part I chapter 3) five of these cases were selected for further analysis. The analytical framework was, however, slightly modified to better reflect the facilitating factors for the successful development of community-based and smallholder forest management initiatives.

The following factors are considered in the analysis of the cases:

I. Policies, institutions and governance
- 1) Well-defined land tenure and rights to forests and trees
- 2) Effective participation and stakeholder cooperation
- 3) Long-term vision
- 4) Social cohesion and respect to cultural identity
- 5) Strong organisation and leadership
- 6) Capacity for enforcement and conflict resolution
- 7) Effective and balanced strategic partnerships

II. Forest resources, capacities, cultural and socio-economic aspects
- 8) Forest resource base and potential
- 9) Contribution of forest resources to livelihoods and local development
- 10) Technical and managerial capacities
- 11) Access to commercial opportunities, linkages to markets and value chains
- 12) Access to financial resources

III. Technological development, research and monitoring
- 13) Technological innovation and research to add value to forest products and services
- 14) Flexible and effective system of surveillance and monitoring

The five case studies are shortly described in section two. Section 3 presents the results of the analysis of the enabling conditions/facilitating factors for sustainable community forest management, and section 4 concludes the chapter with conclusion from the analyses and recommendations.

8.2 Case descriptions

Three of the cases selected for analysis in this chapter are initiatives where indigenous or mestizo communities manage native tropical or subtropical forests on either communal or public land. Two cases are local initiatives ran by smallholder associations to protect,

[5] The panel of experts used this evaluation process to choose exemplary cases, defined as cases in which forest management has been implemented according to the sustainability criteria (some cases achieved this goal to a higher degree or level than others) and the MCE standards. These cases were checked and documented by professionals in the field to complete the process of analysis and selection.

Table II 8.2 Exemplary cases selected involving communities or smallholder associations.

Cases	**San Andrés**	**El Choloque**	**S. Diego Tezains**	**Cururú**	**Chinchiná**
Location	Petén, Guatemala	Lambayeque, Peru	Durango, Mexico	Santa Cruz de la Sierra, Bolivia	Caldas, Colombia
Area	51 940 ha	1027 ha	26 038 ha	26 421 ha	12 697 ha
Type of forest (Biome)	Native (subtropical humid forest)	Native (tropical dry forest)	Native (tropical and subtropical coniferous forest)	Native (subtropical humid forest)	Mixed secondary + planted forest + agroforestry system (tropical humid forest)
Organisation	Community association	Community association	Community cooperative	Community association	Smallholder associations
Land tenure	Public (in concession)	Communal	Communal (ejido)	Communal	Public and private
Management objectives					
Industrial wood production	X		X	X	
Harvesting of non-timber forest products	X			X	
Multiple uses (including food security)		X			
Generation of environmental services			X		X
Reforestation					
Forest landscape restoration		X	X		X
Biodiversity conservation	X				X
Protection (water resources, soil)			X		X
Research and demonstration					X

manage, and restore mixed primary or secondary forests, plantations, and agroforestry systems. The forest management areas in these cases range from 1027 ha to roughly 52 000 ha. Background information for each case is presented in Table II 8.2.

In this section the five cases are briefly described in terms of the context; the main conditions shaping SFM and the resulting outcomes on forests, local livelihoods, and development; and the evolving relationship between forests and people and the diverse ecological, social, and economic outcomes.

8.2.1 Community of San Andrés in Petén, Guatemala[6]

Context

This community in the department of Petén is located in one of the most important native forests in Mesoamerica, rich in natural resources and archaeological finds with monuments dating from the ancient Maya civilisation. In 1990, the Maya Biosphere Reserve (MBR) was created, becoming the largest area in Central America still covered by tropical rainforest. The creation of the MBR generated a series of clashes between local communities and government institutions. The frequency of poaching and forest fires rose sharply (Gómez and Méndez 2007). To mitigate opposition, the government, through Guatemala's National Council of Protected Areas (CONAP), made the decision in 1994 to award management concessions to local communities for forest areas in the reserve. In that year the community of San Andrés created the Integrated Forest Association of San Andrés, Petén, (Spanish acronym AFISAP), a non-profit, non-political civil society association. In 1999 AFISAP was awarded a 25-year renewable concession for the San Andrés forest management unit in the Multiple-Use Zone of the Maya Biosphere Reserve, with an area of 51 940 ha.

AFISAP harvests wood and non-wood products in its concession area following an approved long-term (40 years) forest management plan. Wood products mainly come from a few species: mahogany (*Swietenia macrophylla*), Spanish cedar (*Cedrela mexicana*), manchiche (*Lonchocarpus castilloi*), santa maria (*Calophyllum brasiliense*), and pucté (*Bucida buceras*), with a logging density of 1.5 trees/ha. The association also harvests about 25% of the concession's potential in non-wood resources, mainly from the *xate* palm (*Chamaedorea oblongata*), sapodilla or chicle tree (*Manilkara zapota*), and allspice (*Pimienta dioica*) species (Figure II 8.1). But most of the concession's economic income, about 90%, comes from selling wood products.

Main conditions shaping SFM and resulting outcomes

AFISAP has been able to efficiently combine external opportunities with the association's strengths by managing the organisation with social responsibility not only for its associates but also for the community in general and other stakeholder groups (clients, suppliers) and by facilitating social cohesion among its associates. Organisational strengthening has supported forest protection and provided benefits for AFISAP and the municipality. Adherence to strictly following management plans has contributed to sustainable harvesting and the control of forest fires and expansion of human settlements. An enterprise vision has facilitated the growth of investments in infrastructure, equipments, and training of personnel.

Among the main conditions that have contributed to SFM implementation, the following can be highlighted:

- *Historical context*. Prior to the concessions, many of the Petén communities were informal loggers, which gave them a basic capacity for managing logging operations.
- *Participation*. One of the keys to AFISAP's success is the active participation of its members in the day-to-day running of the organisation, from planning the harvest to selling its products and services.
- *Capacity development*. AFISAP's members have improved their operational, technical and administrative skills, allowing the association to reach its current level of development.
- *Employment quality and work security*. Job quality (working time, incentives, social security) and compliance with labour laws and training in work safety have influenced employment stability and the dedication, creativity, and efficiency of AFISAP's workers and leaders.
- *Mechanisms for conflict resolution*. Appropriate mechanisms are applied to resolve conflicts that arise in management, mainly to deter land squatters from invading the concession area.
- *Respect and valorisation of the cultural diversity and local knowledge*. Most families from AFISAP and the community in general have lived from the forest for several generations, applying good practices and traditional knowledge in their forest activities. This can be observed, for instance,

[6] Adapted from: "San Andres: A community organization manages a unique natural resource responsibly" by Juan Herrero. In: FAO 2010, p. 50–56.

Figure II 8.1 Women from AFISAP community association in San Andrés, Petén, Guatemala, selecting leaves of xate (*Chamaedorea* spp.), an economically important non-timber forest product. ©Juan Herrero

in the harvesting of xate *palm* leaves[7] and latex from chicle tree.[8]

- *Diversification of uses*. New forest products and services have been incorporated over the past years to traditional timber production and the collection of xate and chicle. Recent additions include ecotourism and beekeeping for honey and other products. An inventory of non-timber forest products that include guano (*Sabal morisiana*), copal (*Protium copal*), pepper, chicle and breadnut (*Brosimum alicastrum*) is underway. As part of the diversification strategy, AFISAP acquired the farm El Triunfo, which operates under an agroforestry system, in 2007 to develop projects that create jobs for the local community. Today the farm produces a wide variety of organic fruits and vegetables. Fish farming, poultry, and beekeeping projects have also been developed on the farm, producing honey, bee wax, and propolis[9].
- *Value added to forest products and services*. In the beginning AFISAP sold wood by the square foot, but in 2002 it created a company to manage its exports and the following year bought a mobile sawmill. This investment allowed the association to transform logs into lumber and sell it directly to clients, eliminating intermediaries. In recent years the association acquired a carpentry shop to add more value to its products, which are mainly exported though a small quantity is sold in Guatemala. The community uses the services of FORESCOM, a community services provider of which AFISAP is also a member, for shaping, drying, and planning timber from lesser-used timber species.
- *Innovative mechanisms for conservation and protection*. The association has been recognised by international organisations for its application of measures to protect flora and fauna species that are rare, threatened, and in danger of extinction, as well as their habitats, and the establishment of protection and conservation zones. An example is the award received for its work protecting the scarlet macaw.
- *Diversity of administrative and organisational processes for management*. Since its creation, AFISAP has had a series of executive and advisory bodies that are essential for its good performance, such as the general assembly, the board of directors, the consultative council, a supervisory body, the general management, and working

[7] The leaves of the xate palm have a wide range of uses, including in flower arrangements due to their beauty and resistance to discoloration. These are mainly exported to the United States.

[8] The *chicle tree* latex is used as a raw material to make chewing gum. It also has numerous other uses and is often in high demand

[9] Propolis is a resinous mixture that honey bees collect from tree buds, sap flows, or other botanical sources. It is used for medicinal purposes.

committees. In recognition of its forest protection and conservation standards, AFISAP received a prize from National Council of Protected Areas (Spanish acronym CONAP) for being an exemplary CFM organisation in the Maya Biosphere Reserve.

- *Innovative alliances*. From the beginning, AFISAP established partnerships with and received technical and financial support from different institutions and organisations that have been important to its development and growth, including the ProPetén International Conservation Project, the Training and Productivity Technical Institute, Rainforest Alliance, and the Wildlife Conservation Society. The association also has a close relationship with education centres that help with research and provide interns to work in the concession. AFISAP is an active member of the Petén Forest Communities Association (Spanish acronym ACOFOP), which helped it obtain the forest management concession and offers research and technical support.

Evolving relationship between forests and people and resulting outcomes

In the 11 years since AFISAP was formed, the area under its management has brought important socio-economic benefits to its members[10] and the population of San Andrés through employment generation and support to municipal social programmes.

The creation in 2009 of the National Alliance of Forest Community Organisations of Guatemala[11] represents for AFISAP and other community organisations an important platform dealing with the technical and political aspects related to the CFM process.

Another important forum for interaction and cooperation is the Mesoamerican Peoples and Forests Alliance (Alianza Mesoamericana de Pueblos y Bosques), which provides visibility to community and indigenous organisations in the region and promotes forest conservation through SFM, searching for incentives for local groups that have conserved and are managing these forests.

Women, young people, and elders are represented in the meetings and participate in decision-making. Women have the same opportunities as men to be employed in the different productive activities.

Currently ACOFOP and its partner organisations are working in the preparation of a proposal to extend the rights and contractual terms for the community concessionaires since most of them have passed the halfway mark in the contract. This is critical in the negotiation with the government for a project on carbon certificates under REDD+ (Reducing Emissions from Deforestation and Forest Degradation) and could be an important opportunity to strengthen the CFM process.

8.2.2 Community of El Choloque in Lambayeque, Peru[12]

Context

The forest of the community of El Choloque is within one of the world's biodiversity hotspots. The village, in the Motupe district in the department of Lambayeque, consists of 60 families of mestizo origin. The community has created the Association for the Protection of the Dry Forests of El Choloque (Spanish acronym ASPROBOS) to organise the participation of community volunteers in forest management and productive activities. The community's forest management plan was established in 2003, covering an area of 1027 ha. This 20-year plan outlines the community actions aimed at conserving the dry forests ecosystem and developing sustainable production processes for non-timber forest products that improve the standard of living.

Main conditions shaping SFM and resulting outcomes

ASPROBOS is an efficient, independent organisation that has grown by executing projects successfully and transparently; it has built a good reputation in the community. The association has obtained financing from banks and won the support of regional and local governments, allowing it to establish synergies with them.

[10] In 2010 there were 173 associates, of which 15 were women.

[11] The Alianza Nacional de Organizaciones Forestales Comunitarias de Guatemala – created in 2009 – provides a forum for small-scale forest users, communities, and indigenous groups in Guatemala to find a common voice and influence national and international forest policy. Made up of more than 400 community groups, with about 77 000 members, the alliance represents an unprecedented level of coordination among indigenous people and community forest organizations in Guatemala (Growing Forest Partnerships. Briefing 2011).

[12] Adapted from "El Choloque: A poor community saves a tropical dry forest from destruction and improves its quality of life" by Miguel Segur Pelayo, José A. Orellano Rodríguez, and Patricia Medina Llerena. In FAO 2010, p. 70–74.

El Choloque community has a long-term vision for natural resources management. The members understand that the forest must be protected, which is why they guard their forest areas, sow seeds to diversify species, and increase tree cover while protecting natural regeneration. In addition to silvicultural activities and agroforestry designed to promote regeneration and forest restoration, community members have developed a prosperous business producing organic honey, honey from alpargate bees, and jams. In these efforts the community has received support from various sources since 1994, in the form of technical and humanitarian assistance (food donations).

The support of local and regional authorities, who for example used this experience for shaping the regional community-forestry policy, has helped the village of El Choloque to keep going even during difficult times when other communities might have decided to split the profits and walk away. As a result, the community has managed to conserve its tropical dry forest that was threatened with destruction while improving the quality of life for its members.

Evolving relationship between forests and people and resulting outcomes

At a local level, the association has helped initiatives that protect forests and promote sustainable management. The biggest producers in ASPROBOS act as coaches, applying teaching methods such as "learn by doing" and "from farmer to farmer" to spread the community forestry idea in their local surroundings.

The creation of a local management committee for the Moyán-Palacio Regional Conservation Area provided a space for participation and coordination for the local population where forest conservation actions are planned. ASPROBOS was first to lead this committee but now some organised local actors have taken over the work, for example, as voluntary park guards. This is an interesting effort to empower local organisations to protect access to natural resources. ASPROBOS plays a supervisory role, denouncing illegal acts against the forest resources.

At a regional level, the association supports the development of a regional system of protected areas in the department of Lambayeque to promote tourism activities (birdwatching, organic food sales, adventure tourism, etc.). ASPROBOS also participates in regional organisations promoting biodiversity conservation. Thanks to the intervention of ASPROBOS and its business modality within its own territory and a watershed approach to secure water resources, the Peruvian government declared the upper part of El Choloque as a Natural Protected Area and is promoting its conservation.

8.2.3 Ejido San Diego de Tezains in Durango, México[13]

Context

San Diego de Tezains is an *ejido* (state-supported communally farmed land) of 374 members and a population of 1600 located in the mountainous region of the Sierra Madre Occidental in the state of Durango, Mexico. It covers about 60 000 ha of land, of which 26 038 ha are commercial forests. The ejido has become an important social and business organisation, especially in terms of silviculture, industrialisation, and marketing of timber products and has become one of the main forestry producers in Durango. Since 2000, its operations have been certified by the Forest Stewardship Council (FSC).

The use and harvesting of forest resources is the ejido's main economic activity. The forests are mainly temperate, with diverse combinations of pine and oak (*Pinus-Quercus*), deciduous forest (with species like *Arbutus* sp. and *Junniperus* sp.), and riverbank vegetation. The forest management plan covers 26 038 ha of commercial forests (43% of the total area) and is oriented towards the extraction of roundwood and its transformation into diverse products (such as boards, boxes, and pallets) as well as ecotourism. Local families practise subsistence farming in a relatively small area. A few families practise extensive cattle farming, raising cattle, horses, pigs, and poultry.

Main conditions shaping SFM and resulting outcomes

San Diego de Tezains developed from supplying raw materials to a decentralised public organisation (PROFORMEX) to independently producing and selling wood products (thanks to a loan from the National Communal Lands Development Fund, or FONAFE, that allowed the community to purchase a sawmill). In this evolution, the ejido developed a solid and well-defined organisational structure under a collective management scheme for forest harvesting, overseen by a general assembly and a technical council formed by professionals from the region who had contributed with their own financing. Today, the community-owned company employs an average of 200 workers in different processing activities, from extraction to marketing (Figure II 8.2).

[13] Adapted from "Tezains: A community cooperative protects the forest and produces innovative products and services" by César Alvarado. In FAO 2010, p. 93–98.

Figure II 8.2 Wood processing is the main industry in the community-owned company of the San Diego de Tezains ejido in Durango, Mexico. ©César Alvarado

The cooperative's forest management practices are established in a 15-year operating plan and annual operating plans. These are approved by the state's forestry service, CONAFOR, and are also supervised by the company's certification agency. The co-op uses various innovative forest management techniques that are worth highlighting. Mobile harvesting equipment, for example, is not used in the forest. Instead, the workers use five tow bikes that are rented from members under a semi-private system. Workers are paid by the cubic metre for collecting forest waste, including branches and trunk sections. The trucks that transport the wood from the forest are administered directly by the company, but a member can also obtain a truck and pay for its maintenance. The transport of timber and other products to the market is done using company vehicles or rented trucks, and in some cases, customers take care of their own transport.

The co-op is constantly seeking new markets for its products to make its activities economically sustainable. All activities are also subject to financial analysis and accounting.

One of the company's key strategies has been reinvesting its profits to ensure efficiency in production processes and the competitiveness of its products in the market. The co-op members have a clear long-term vision of natural resource conservation, which is based on the community's forestry tradition.

The co-op has developed processes that add value to forest products, with most investment going into industrial production equipment:

- The company has three sawmills used to process different types of wood. The waste, mainly bark and sawdust, is stored and sold separately. The system of wood selection follows the country's classification criteria.
- All wood is treated to prevent discoloration, then air-dried, and packed. The company also has a drying room for wood used in furniture manufacture.
- The company sells roundwood (mainly from the genus *Quercus*), lumber, toothpicks, sawdust, woodchips, and bark (to produce fertilizer), among other products.

The company is careful to fulfil all obligations to its clients in terms of delivery times and the quantity and quality agreed upon. The woodchips and sawdust are sold to two large panel products companies in Durango and Michoacán. Soon, the company plans to produce plywood, mouldings, and furniture.

The co-op has recently developed a new ecotourism project – San Diego Paradise. This ecotourism complex, located in an area of great natural beauty, offers a variety of services including cabins, fishing, interpretative trails, lookouts, camping areas, equipment rental for outdoor sports, and diverse wildlife, providing an excellent recreation and adventure alternative in the region. The complex uses the logo of Mexico's Tourism Department and is included on its list of tourist attractions, which is key to attracting visitors and generating income.

The ejido has developed successful alliances

with private, state, and semi-state organisations at various levels. One of the ejido's strongest partnerships is with the Community Forest Development Programme (PROCYMAF) of the National Forestry Commission. This programme, led by co-op members, communities, and indigenous peoples' associations aims to strengthen CFM schemes and help the owners of these resources generate alternative sources of income. In addition, it maintains strong links with high schools and universities.

The co-op has also established partnerships with various universities in different research areas, not only to obtain an immediate benefit for the company but also to contribute to the development of science and education in the region. The central government has a series of programmes supporting silviculture, forest protection, and industrial development. For example, the ProÁrbol programme, aimed at promoting silviculture, has supported reforestation and soil conservation using forest waste products.

Evolving relationship between forests and people and resulting outcomes

Forestry has made an important contribution to reducing poverty and improving the quality of life of ejido families. Unemployment does not exist in San Diego de Tezains. The minimum salary paid by the co-op's company is three times higher than the regional average. The company gives preference to local workers and is an important source of jobs for the community. It also invests in social projects such as water treatment systems, drainage, schools, health centres, etc. The profits are distributed equally among the 374 members. The workers receive dividends every three months, without exception.

All company employees have health insurance and access to medical services. The co-op also supports primary and secondary schools and gives scholarships to outstanding students, whether co-op members or their family members. It's not a requirement that these students, once they have graduated, return to their community, but it is worth noting that a large majority do return and become involved with the forest co-op company.

Women have an important role in the production process, especially in activities related to the plant nursery, production of toothpicks and broom handles, packaging, and administration, among others. Moreover, there is a Women's Industrial Agricultural Service, which receives some of the co-op's profits to develop its own projects. There are 146 female co-op members with property rights, representing 39% of all members.

In the past two years, the co-op has implemented various activities aimed at sustainable development: acquiring road clearing equipment, modernising factories, buying machinery to improve productivity, carrying out reforestation – including soil conservation, maintaining reforested areas and ensuring plant health, doing market studies to increase exports and identify demand for products with value added, developing technical studies of conservation areas with diverse ecosystems, and strengthening the Paraíso de San Diego ecotourism centre.

The level of organisational maturity achieved by the co-op is one of its main strengths and is a key element for its long-term sustainability in terms of community entrepreneurship. For the exemplary management of forest resources, the co-op members of San Diego de Tezains obtained the 2009 Forest Merit Prize in the category of community silviculture presented by the president of Mexico.

8.2.4 Guaraya Community of Cururú in Santa Cruz de la Sierra, Bolivia[14]

Context

The Cururú community, in the province of Guarayos, 310 km from the city of Santa Cruz de la Sierra, forms part of the Guarayos Indigenous Peoples' communal property (TCO or *Tierras Comunitarias de Origen*), which allows indigenous communities to develop their own economic, social, and cultural systems. The Guarayos are part of the Tupi-Guarani family of South American indigenous peoples, traditionally governed by a head council or *cabildo* made up of councilors who elect the *cacique*, the authority responsible for ensuring the preservation of the Guaraya culture and religion. The Guarayos indigenous community land covers 1.15 million ha, titled on behalf of the parent entity, the Guarayos Center for Indigenous Peoples' Organizations (COPNAG).

The conditions in the Cururú community, formed by 212 people in 32 families, are precarious: road access is very difficult, there are no health services, and the community lacks running water, electricity, and sewage treatment. Its school has two teachers and 56 students in different levels. The boys and girls also work from a young age with their parents and learn skills for farming, ironwork, carpentry, leatherwork, weaving, shipbuilding, masonry, and arts such as music.

[14] Adapted from" Cururú: An indigenous community organization harvests wood and non-wood products to defeat poverty" by Henry Moreno. In FAO 2010, p. 75–80.

The Guaraya families traditionally practise subsistence agriculture, complementing small-scale cattle farming with forestry activity, hunting, fishing, and handicrafts. The forests are mainly used to provide raw materials for their housing needs, food security, energy, handicrafts, and medicines. The Guarayos have a rich artisanal tradition of using forest resources for making musical instruments, handicrafts, furniture, canoes, and some tools. Non-wood products include cusi palm oil (*Attalea speciosa*), honey, wild fruits, resins, and latex. They also use a wide variety of plants for medicinal purposes and palms in multiple ways: trunks as beams for their houses, leaves for roofs and weaving baskets, and seeds for extracting oil. From the urucuri palm (*Attalea phalerata*), known as *motacú*, they obtain palm hearts and fruit.

Since the introduction of the Forest Law, many Guaraya communities have organised themselves in forestry associations to harvest their forests and obtain economic returns. Some have been more successful than others, mainly those with management plans for larger areas that are located in the northern part of the TCO (San Juan, Cururú, AISU, Curuvare).

The most common tree species of commercial interest are *tajibo* (*Tabebuia impetiginosa*), *cuchi* (*Astronium urundeuva*), mahogany (*Swietenia macrophylla*), *ochoo* (*Hura crepitans*), *curupaú* (*Anadenanthera colubrina*), *serebó* (*Schizolobium* spp.), *paquió* (*Hymenaea courbaril*), and *sirari* (*Ormosia coarctata*).

Main conditions shaping SFM and resulting outcomes

In 2001, the Cururú community received technical support from the Bolivia Sustainable Forest Management Project (BOLFOR) and other organisations to conduct forest inventories and to prepare, obtain approval of, and implement a general forest management plan (FMP) covering 26 421 ha with a logging cycle of 30 years.

To administer the management area, the community created an association called the Cururú Indigenous Lumber Association (Spanish acronym AIMCU), a community-owned forest company comprises 32 members. In 2007, the Cururú community certified its forest under the FSC. This followed the signing of a technical and economic cooperation agreement with the company INPA Parquet in Concepción.

AIMCU is in charge of executing the community FMP, in compliance with the rules established by COPNAG for the use of natural resources. The association is also responsible for maintaining an efficient business structure, approving the annual forest operating plans, and organising and supervising committees for the different forestry activities, including security measures to stop third parties from invading the land. AIMCU's Forestry Committee is made up of five members, including a forestry professional who is responsible for reporting back to the country's forestry regulator. To control the association's income, payments are deposited in a bank account in the name of the Cururú community in order to avoid potential problems that can occur when individuals manage large sums of money.

To ensure the Cururú FMP is implemented correctly, AIMCU has developed a training programme for technical and managerial aspects of SFM. AIMCU's forestry operations team has received training over several years, which has allowed them to gradually take on the technical and administrative responsibilities under the management plan.

Evolving relationship between forests and people and resulting outcomes

Most of the income generated is used to cover operating costs of forestry and other activities and the remainder is divided among the members. The community decided that 15% of the profits should be paid to workers as a production bonus, 3.5% to COPNAG, and 5% for the community. Payments to the community and COPNAG are designed to support their forest-related activities in Cururú.

The creation of jobs for both men and women is one of the key benefits of the wood producers' association. In addition, AIMCU is developing a project to improve community housing using a design that respects the traditional Guaraya architecture.

More recently, with the support of the Center for Sustainable Forest Enterprise (CADEFOR), the community made the decision to create a microenterprise (SERFORCU) to provide services for 100% commercial inventories, directional felling, and other reduced-impact logging techniques, capitalising on the knowledge acquired through the technical assistance received from external agencies such as the BOLFOR I and II projects, the PAI Project, WWF, and others. This has improved income from the sale of services and generated new jobs and training opportunities for more young people.

Thanks to AIMCU, the community has the confidence to continue with its forestry activities on more than 26 000 ha of land certified by the FSC, which should also allow AIMCU to obtain better terms in negotiations with potential customers.

8.2.5 Smallholder association of Chinchiná in Caldas, Colombia[15]

Context

The Chinchiná watershed, covering 113 000 ha, is in the south-central area of Colombia's Caldas Department. It is home to some 530 000 people in the towns of Manizales and Villamaría as well as part of the Neira, Palestine, and Chinchiná municipalities. Its altitude varies, rising from 780 meters above sea level (masl) to 5400 masl in the Nevado del Ruiz. For nearly 200 years, the region has survived by producing two traditional products, coffee and beef, that generated economic growth though at the expense of serious environmental problems.

Forests cover more than 68% of the basin, but much of the native forest has been cleared to grow coffee and create pastures for livestock. This has led to soil deterioration, erosion, and, as a result, sediment build-up in the river. There has also been a significant loss of biodiversity caused by the destruction of forest and riverbank habitats. Making the situation worse, the crisis in the coffee and livestock markets in recent decades has brought economic and social hardships to the region.

The Chinchiná Watershed Forestry Project (PROCUENCA) was created in these circumstances with the mission to build a sustainable wood production process, promote forest restoration, enhance environmental services, and improve the quality of life of the population. The improvement of the production chain based on a system of shared public-private responsibility was proposed. The project aimed to bring about a cultural change while maintaining the essence of the community and its cultural traditions.[16]

Main conditions shaping SFM and resulting outcomes

Changing social attitudes was particularly important since deforestation was the result of clearing land for traditional farming and crops. The strategy included the development of new economic opportunities (forestry, agroforestry, and tourism), without taking away traditional sources of income, mainly coffee growing and cattle grazing. The PROCUENCA project's strategy was based on four main pillars:

1. *State participation*: The state's involvement has been important in promoting the project and implementing support mechanisms and incentives. The five municipalities involved have included the project in their long-term development plans to ensure its continuity. The project is financed by an independent municipal institute (Institute of Finance, Promotion and Development of the Municipality of Manizales, or INFI Manizales), which runs the project with funds obtained from the water service concession owned by the private company Aguas de Manizales.
2. *A project coordinator*: PROCUENCA was created within the framework of the agreement with INFI Manizales and support from FAO. It has a strong management structure and technological-innovation capacity, which has enabled decentralised and flexible project management.
3. *Allocation of funds*: The project implemented a fund allocation mechanism in the form of payments for environmental services (PES). This mechanism works by assigning a value to the environmental processes and regulatory functions performed by different actors and distributing funds in relation to this value. Part of the funding for the project is derived (indirectly through concession fees) from payments by landowners for the community's potable water service. The landowners are then repaid for services provided in the form of incentives aimed at forest restoration, diversification, and sustainable development. This method is used to recover environments for biodiversity conservation and protect water resources.
4. *Community participation*: PROCUENCA initially identified community members and landowners with leadership potential, and these people further encouraged their neighbours to become involved in the project's initiatives as well as setting future goals and objectives. Neighbourhood committees were established to help recover conservation areas and promote training in technical aspects of production. Communication was also improved between residents and landowners, which facilitated decision-making.

The project used different methods to incorporate communities and encourage sustainable activities over the long term, such as:

- Facilitating access to financing (soft loans and technical assistance)
- On-Farm Sustainable Forestry Management, a mechanism that helps landowners implement an

[15] Adapted from "Chinchiná: A public-private forestry project protects the environment and generates socio-economic development" by Luis Chauchard. In FAO 2010, p. 156–164.
[16] The PROCUENCA project is based on the Environmental Management Plan for the Chinchiná watershed. From 2001 to 2008 the project received technical assistance from FAO. Since then, the municipality has been solely responsible for project management and execution.

environmentally sustainable forest production plan and provides around-the-clock technical support throughout the duration of the contract
- Sustainable production systems, such as agroforestry and silvopastoral activities, to generate additional income for producers, coupled with the promotion and assistance in creating and strengthening these systems through the Association of Agroforestry Producers (AGROFORESTAL)
- Community management of water resources
- Community participation in decision-making through representation on the Technical Committee of three producers involved in the project
- Capacity development and outreach
- Adding value in the forest production chain

One of the strengths of the project is its public-private organisational structure that allows technical and financial independence while facilitating public participation in the management process. The project also established links with external agencies to provide financing and technical support for research and innovation and involved local landowners and neighbourhood associations.

Part of the success of the project is due to its financing mechanism. INFI-Manizales invests 10% of its royalties obtained from the potable water company into the project, and this money is used to provide incentives for producers to improve their production processes and forest restoration. These funds are also used to benefit the community, for example, in cleaning up waterways, expansion of potable water infrastructure, and implementing reforestation plans on land with high conservation value. Various other financing mechanisms were also used in the project.[17]

Increased productivity and environmental protection

The project included the management and sustainable use of different types of forest: native secondary, forest plantations, and agroforestry systems. Reforestation and restoration activities are carried out on public or state-owned land to ensure the conservation and growth of natural forests in vulnerable areas. No harvesting is permitted in native forests, which are mainly second-growth due to intense human activity in the past, including settlement and expansion of the agricultural frontier.

The reproduction of native species is promoted for restoration activities. Many of these species (e.g. *Hyeronima antioquensis*, *Oreopanax* sp., *Palicourea* sp., etc.) are difficult to reproduce through artificial propagation, but transplanting native plants that sprout from earthwork sites resulting from road construction and maintenance has been tested with good results.

Forest plantations and agroforestry projects are developed on private land that was used in the past for growing coffee and for livestock production but now trees are combined with coffee plants, crops, and silvopastoralism (wood and grasses).

Forestry systems overlap with, rather than replace, traditional agricultural land uses. This has enabled producers to continue cultivating crops and raising cattle while diversifying their activities to include forest management, which will generate income in the long term (from 11 to 18 years).

The project created a Management Programme for Micro-Basin Water Resources (MIMA), which aims to ensure the sustainability of water resources in the watershed. The process of forest restoration and environmental protection was started in 29 out of the 52 micro-basins identified in the area as environmentally vulnerable due to pressure on natural forests.

[17] a) *Soft loans*: Proceeds from the water services concession given to landowners as soft loans to create forest plantations and perform other activities such as pruning and selective logging. These loans, which increase annually in line with the Consumer Price Index (CPI), come with technical assistance and are paid back at harvest time.

b) *Forestry Incentive Certificate* (*CIF*): Based on a 1994 law to promote the establishment of commercial forest plantations that offers a financial incentive equivalent to a percentage of the costs of establishing and managing the plantation. Landowners can manage these incentives independently, but for small producers, the costs of performing the required studies can be high.

c) *Forestry Capital Fund*: This is a long-term financing instrument for the sustainable management of new plantations and for development of new processes to add value to the raw material produced.

d) *Clean Development Mechanism* (CDM): Since 2003, the UN's CDM mechanism has been used to generate carbon credits from forestry plantations that sequester carbon emissions. These projects must first be registered under the United Nations Framework Convention on Climate Change (UNFCCC) in order to sell Certified Emissions Reductions (CERs) from forests. Once the CERs are certified, they can be sold to foreign countries to help them meet their emissions reduction goals and each landowner involved receives a financial bonus. In April 2010, the project received approval from the UNFCCC, making it the first Colombian CDM forestry project and the second large-scale project of its kind in Latin America.

The territory is zoned for the development of biological corridors and waterway protection. Existing native forests are protected and restored in areas that connect with forests in neighbouring areas, which involved coordination between public agencies and private landowners to allow the protection and connectivity of these forests. Such agreements use a legal mechanism called "ecological easement," which reserves privately owned land for conservation and restoration of wetlands and waterways. This mechanism enables public investment on private land.

Evolving relationship between forests and people and resulting outcomes

Community participation has been established in each area of the region, involving local communities to create a cultural change in land use and conservation and to promote self-management. The project promoted activities through community meetings in villages, field visits, individual contacts, training programmes, and the association of forestry producers.

The School of Forestry Leadership trains producers, workers, and rural youth in partnership with public agencies and private institutes and promotes environmental education programmes in schools and rural colleges. These programmes raise awareness and create a forest culture in communities with full-time courses for young people and part-time courses for managers and farmers.

The implementation of the project has increased the value of private estates, which has encouraged many families to return to live on them. Moreover, the strategy of public participation has allowed neighbours get to know each other better through regular community meetings.

The project has succeeded in uniting the government and landowners to work towards common goals. In addition, it has created a cultural change in the attitudes of other landowners in the basin with regard to the implications of past land-use practices and the need to organise and actively participate in the activities promoted by the local association.

After completing the first phase of the project, AGROFORESTAL has emerged as a key actor in regional development, and the main challenge in the next phase is to improve the economic sustainability of the association.

8.3 Analysis of enabling conditions/facilitating factors for sustainable SFM

Table II 8.3 presents an overview of the analysed framework conditions in each case. These conditions are further discussed below.

8.3.1 Policies, institutions, and governance

Well-defined land tenure and rights to forests and trees

The most important changes in land tenure and forest-use rights in the presented cases have resulted from reforms in the policy and legal/regulatory frameworks. These changes created the conditions for the clarification and recognition of land-tenure rights on what had been traditional community territories (e.g. Larson et al. 2008). External support providing technical and financial assistance played an important, if not a key, role, especially in the process of preparing the communities to have access to forest resources through the approval of the FMPs and, often, of the subsequent annual operating plans.

- In the case of San Andrés, the long-term concession contracts offered by the government (CONAP) prompted the community to get organised and apply for a concession to utilise the forest following rules laid out in an FMP. Giving the community legal responsibility for the forest was decisive in significantly reducing illegal logging, land invasion, and wildfires.
- The promulgation of Bolivia's Forest Law in 1996 allowed many indigenous communities to legally use forests through FMPs, as was the case for the community of Cururú. AIMCU received support from the BOLFOR project and other organisations to conduct forest inventories and prepare the FMP.

Effective participation and stakeholder cooperation

Participation is the engine of development activities and a driver of change. The cases illustrate the importance of an effective and inclusive community participation where women, young people, and elders are part of the decision-making process and are given opportunities to play active roles in forestry activities.

Table II 8.3 Analysed cases and the framework conditions (❖ when the condition is strongly present)**.**

Cases	San Andrés	El Choloque	Tezains	Cururu	Chinchiná
I. Policies, institutions and governance					
1) Well-defined land tenure and rights to forests and trees	❖		❖	❖	
2) Effective participation and stakeholder cooperation	❖	❖	❖	x	❖
3) Long term vision	x	❖	❖		x
4) Social cohesion and respect to cultural identity	❖	❖		❖	x
5) Strong organisation and leadership	❖	❖	❖		x
6) Capacity for enforcement and conflict resolution	❖	❖		x	
7) Effective and balanced strategic partnerships	x	x	❖	❖	x
II. Forest resources, capacities, cultural and socio-economic aspects					
8) Forest resource base and potential ✪ For agroforestry and trees outside forests)	❖	✪	❖	❖	✪
9) Contribution of forest resources to livelihoods and local development	❖	x	❖	❖	x
10) Technical and managerial capacities	❖		x	x	❖
11) Access to commercial opportunities, linkages to markets and value chains	❖	x	❖	x	x
12) Access to financial resources	x	x	x		❖
III. Technological development, research and monitoring					
13) Technological innovation and research to add value to forest products and services	❖	x	❖	x	x
14) Flexible and effective system of surveillance and monitoring	x		x	x	

- In San Andrés, one of the keys to AFISAP's success is the active participation of its members in the day-to-day running of the organisation, from planning the harvest to selling its products and services. Its members have improved their operational, technical, and administrative skills, allowing the association to reach its current level of development. Particular attention is paid to women and young people.
- In San Diego de Tezains, community members maintain historic forest traditions and a collective management scheme for forest production and community work. Women's participation is important in the production process of the cooperative.
- The case of Chinchiná shows a high level of community participation and organisation, for instance, through members and landowners with leadership potential who encourage their neighbours to become involved in project initiatives.
- In El Choloque, the creation of a space for participation and coordination for the local population was favoured by the community's strong cohesion and involvement in all decision-making processes. The town council and ASPROBOS, the executing structure, exist harmoniously, with the former organising the participation of community volunteers.

Examples of stakeholder cooperation can be drawn from the cases of El Choloque and Chinchiná, with coordination and active involvement of the local/regional government and landowners to work towards common goals.

Long-term vision

Having a common, long-term vision with regard to the use, management, or restoration of their natural resources is fundamental for the sustainability of community-based forest management initiatives. This was shown particularly in the cases of San Diego de Tezains and El Choloque.

Social cohesion and respect to cultural identity

These are also contributing factors to success in CFM initiatives. The cases of San Andrés, El Choloque, and Cururú illustrate this. In Chinchinaá the challenge faced by PROCUENCAS was to create a cultural change in the attitudes of the local residents.

Strong organisation and leadership

Effective participation precludes the development of an effective community organisation for which strong leadership is also a key asset.

- AFISAP in San Andrés shows a well-run organisational structure that adequately administers its management unit with social responsibility and an enterprise vision.
- ASPROBOS in *El Choloque* is a leader organisation that has empowered grass-root organisations and is able to mobilise different stakeholders and financial resources towards common objectives.
- The ejido of *San Diego Tezains* has developed a well-defined, mature organisational structure with a clear long-term vision of natural resource conservation.

Capacity for enforcement and conflict resolution

As part of communal governance approaches and practices, the communities have taken seriously their responsibilities and commitments when formalising the use and management of their forest resources and in respecting laws and regulations. Local decisions regarding the protection of forest areas and the drawing of rules and control measures for forestry activities have also been important in empowering communities and strengthening their capacities in negotiation and conflict resolution.

- In San Andrés, AFISAP's activities to prevent and fight forest fires as well as to crack down on illegal squatting and trespassing clearly show that capacity.
- In El Choloque, the organisation and functioning of the Civil Self-Defense Committee is key to prevent poaching and illegal logging in the protected forest areas.

Effective and balanced strategic partnerships

The forging of alliances and partnerships with governmental and non-governmental organisations has been instrumental in advancing community efforts towards achieving their forest management objectives. The five cases exemplify this quite well, but in particular:

- San Diego de Tezains shows a successful strategy of alliances with private, state, and semi-state organisations at various levels.
- The community of Cururú established a technical and economic cooperation agreement with a forest company.

8.3.2 Forest resources, capacities, and cultural and socio-economic aspects

Forest resources base and potential

Forest areas in the cases dealing with natural humid forests range between about 26 000 ha (Cururú and Tezains) and 52 000 ha (San Andrés) and are mainly primary forests that have partially been selectively logged. The production forests in San Andrés and Cururú contain not only high-value timber species – in particular mahogany, though the main commercial volume comes from hardwoods – but also non-timber forest species of high local value (construction, food, medicinal use, etc.) and in the case of the Maya forests, also resources that already have an established market (xate palms, latex from sapodilla, allspice). The forests in the Mexican case, on the other hand, are mainly temperate with diverse combinations of pine and oak, deciduous forest, and riverbank vegetation. The trend in these three cases is to diversify and intensify (product value added) forest management to include lesser-known timber species, non-timber forest products, and even environmental services (as in the case of Tezains).

In the cases of El Choloque and Chinchiná, the original forests in their respective territories have been severely degraded and the efforts are directed to protection, management, and restoration. The dry lowland forests in northern Peru represent a valuable resource in terms of biodiversity and also valued non-timber forest products, generating income for local residents. The watershed of Chinchiná is characterised by fragments of primary degraded and secondary forests along an altitudinal gradient, with important ecological functions (water in particular) that need to be re-established.

Contribution of forest resources to livelihoods and local development

Forests are important to very important to livelihoods in all selected cases. Communities involved in managing their forests are receiving important economic, environmental, and social benefits from conserving and sustainably using their forest resources. Job creation, better salaries, and (re) investments in community infrastructure and services are the main benefits from forest management.

- In San Andrés, AFISAP reinvests its earnings with the aim of creating jobs and benefitting its members and the population of San Andrés municipality. These investments also contribute to meeting the municipality's health, education, and infrastructure needs.
- In San Diego de Tezains, forest activities have made an important contribution to reducing poverty and improving the quality of life of families in the ejido. The minimum salary paid by the cooperative's company is three times higher than the average for the region. The company gives preference to local workers and is an important source of jobs for the community. All of the company's employees have health insurance and access to medical services. The profits are distributed equally among the members (whether they work in the company or live on or outside the community lands). The company also invests in social projects, such as water treatment systems, drainage, schools and health centres, and supports primary and secondary schools, giving scholarships to outstanding students.
- In Cururú, the creation of jobs for both men and women is one of the key benefits of the wood producers' association (AIMCU), which is also developing a project to improve community housing. The creation of the microenterprise SERFORCU allows the generation of new jobs as well as expanding sources of income and the selling of services to other Guaraya communities and even to forest concessionaires.

Technical and managerial capacities

In all five cases there is evidence of important efforts to develop local capacities for forest management and in some cases enterprise development as well. External support (from NGOs, governmental programmes, the private sector, or research and educational institutions) has been key in providing the (technical, financial) means.

- Community members in San Andrés, with external support that developed operational, technical, and administrative skills over the years allowed them to obtain FSC certification for their concession.
- In Cururú, to ensure correct implementation of the FMP, AIMCU's forestry operations team received training support over several years, which allowed them to gradually take on the technical and administrative responsibilities under the management plan. The association now provides technical services to other communities and even to forest concessionaries.
- In Chinchiná, the School of Forestry Leadership trains producers, workers, and rural youth in partnership with public agencies and private institutes and promotes environmental education programmes in schools and rural colleges that raise awareness and create a forest culture in communities.

Access to commercial opportunities, linkages to markets and value chains

All cases show innovative ways to develop and diversify commercial forest-based opportunities.

- In San Andres, AFISAP went from selling wood by the square foot into processing and selling transformed logs directly to clients, without intermediaries. A carpentry shop allowed the association to add more value to its products. Later on, the association began to diversify its activities by processing and selling non-timber forest products, and even acquired a farm under an agroforestry system to develop projects that create jobs for the local community.
- In El Choloque, in addition to agroforestry work and silvicultural activities designed to promote regeneration and forest restoration, community members developed a prosperous business producing organic honey, alpargate honey, and jams. The members receive payment from the association, which administers activities and controls incomes, making it a more powerful economic actor in the market than the villagers would be on their own.
- San Diego de Tezains is a notable example of entrepreneurship, constantly developing processes that add value to forest products and seeking new markets for its products to help make the co-op's activities economically sustainable. One of the co-op's key strategies has been reinvesting its profits to ensure efficiency in the production processes and the competitiveness of its products in the market. As part of its diversification strategy, it has also begun an ecotourism project.

Access to financial resources

Management requires financing but the access to financial resources for community-based forest management is quite difficult or simply inexistent. Innovative ways of financing forestry activities for smallholders are shown in the case of Chinchiná. PROCUENCA has been able to attract public and private funding to create funding mechanisms (such as PES) to provide incentives for producers to improve their production processes and forest restoration.

8.3.3 Technological development, research, and monitoring

Technological innovation and research to add value to forest products and services

In all cases, research has been and continues to be part of the forest management process, commonly carried out with external support.

- In San Diego de Tezains, innovative adaptations to meet new market demands, a well-placed monitoring system, and key partnerships with various universities in different research areas have allowed the cooperative to stay in business while also maintaining the balance between the different dimensions of sustainability.
- In San Andrés, the association has a close relationship with ACOFOP and various research institutions and education centers to carry out research and provide interns to work in the concession. The community directly participates in the monitoring of chicle extraction and has supported the monitoring of other resources.

Flexible and effective system of surveillance and monitoring

Surveillance and monitoring seems to have gained acceptance and interest as a management tool in community forestry, mainly as result of efforts from external agencies (e.g. accompanying NGOs). In cases where timber production is the main economic output, the usual entry point for monitoring, as part of the technical package promoted by outsiders, consists of monitoring the impacts of harvesting operations. Only through strategic partnerships with research organisations can a more comprehensive monitoring system be found. On the other hand, a common practice appears to be the internal control of forest management activities by some sort of internal community organisation, as in the case of Cururú. This includes supervision and technical and administrative control of activities and surveillance to detect and control unauthorised entries.

8.4. Concluding remarks and recommendations

The successful cases described illustrate how the challenges of forest management can be met to achieve economic, social, and environmental benefits. Each case has been able to respond to the local context and evolving conditions in ways that reflect responsibility, commitment, and long-term vision, applying sustainability criteria and innovation in pursuing the management objectives and community expectations for local development. As important **conclusions** from the analysis, the following can be highlighted:

- Reforms in the policy and legal/regulatory frameworks have been instrumental in creating the conditions for the clarification and recognition of land-tenure rights in traditional community territories. This, in turn, has paved the way for communities to engage in the formalities of and become more involved in the CFM process.
- Local decisions regarding the protection of forest areas and the drawing up of rules and control measures for forestry activities have been important in empowering communities and strengthening their capacities in negotiation and conflict resolution. Cultural identity and tradition play an important role in facilitating the internal organisation for decision-making and compliance.
- The development of local capacities for forest management, in some cases also including enterprise development, has been key in the process. This was possible thanks to external support (from NGOs, governmental programmes, private sector, or research and educational institutions) that provided the technical and/or financial means.
- The forging of alliances and partnerships with governmental and non-governmental organisations has been instrumental in advancing community efforts for achieving their forest management objectives.
- Forests are important to very important to livelihoods in communities. Job creation, better salaries, and (re)investments in community infrastructure and services appear to be the main direct benefits from forest management.
- Management strengths are linked to the diversification of uses through technological innovation and research to add value to forest products and services. Efforts for developing product added value have mainly focused on lesser-known timber species, some non-timber forest products with established markets. However, direct payments from environment services are still quite limited.
- The access to financial resources for community-based forest management is still (quite) difficult, but there are innovative ways of financing forestry activities for smallholders.
- Surveillance and monitoring seems to have gained acceptance and interest as a management tool in community forestry, mainly as result of efforts from external agencies. The usual entry point for monitoring consists of monitoring the impacts of commercial timber operations through post-harvesting evaluations.

Finally, the following **recommendations** can be offered for policy and practice in support of CFM in the region and elsewhere:

- Recognise and, insofar as is possible, incorporate into legal and administrative procedures social control mechanisms for communities, such as local rules regarding the use and protection of forest resources that have been successful in their different contexts.
- Improve the supply of training, technical assistance, and outreach opportunities for CFM through structural measures of promotion and incentives for institutions or organisations involved in these functions. The role of governments is important in creating or improving training opportunities so that those responsible for management, and those who regulate and monitor it, have personnel who are properly trained and qualified for their activities.
- To improve profitability and competitiveness of forest management, encourage and systematically support the development of forest product value chains, helping community and smallholder organisations gain market access for lesser-known timber species and non-wood products and to use wood and forest waste more efficiently.
- Governments can facilitate a greater and better use of research in support of CFM processes by providing institutional incentives and by taking the results into account in the formulation of policies and forest management promotion strategies. Opportunities offered by mechanisms such as PES and REDD require investments in research to improve the economic, environmental, and social sustainability of CFM.
- Establishing and maintaining educational initiatives for academic formation of community members is probably one of the most accepted and rewarding investments of the benefits generated by CFM, involving in particular young people and women.

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